REMARKS

Claims 1-20 and 22-29 have been examined. Claims 20, 22-26, 28 and 29 have been rejected under 35 U.S.C. § 102(e), and claim 27 has been rejected under 35 U.S.C. § 103(a). Also, the Examiner indicates that claims 1-19 have been allowed.

I. Formal Matters

On page 2 of the Office Action, the Examiner has objected to the drawings filed on May 13, 1999. The Examiner is unsure where the feature, "the protrusion and/or groove axially extends from the second ink supply path, across the first open end and into the first ink supply path," is depicted in the figures. However, an illustrative, non-limiting embodiment of a protrusion is shown by the induction member 49 of Figs. 11A and 11B. Also, in the non-limiting embodiment, a "first open end" is approximately located at the midpoint of the needle 48, where the cross-sectional area of the needle 48 begins to increase.

Accordingly, Applicant respectfully requests the Examiner to withdraw the objection.

II. Rejection Under 35 U.S.C. § 102(e) over U.S.P. 5,812,165 to Boyd et al. ("Boyd")

Claims 20, 22-26, 28 and 29 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Boyd.

A. Claim 20

The Examiner has changed the manner in which he reads claim 20 on the cited reference. For example, on page 5 of the May 13, 2002 Office Action, the Examiner maintained that the claimed first ink supply path was suggested by lateral channel 38b of Boyd, and the second ink supply path was suggested by vertical passage 40b of Boyd (Fig. 2). In the present Office Action, the Examiner now maintains that vertical passage 40b, by itself, suggests both the first and second ink supply path. More specifically, the Examiner contends that vertical passage 40b has a top and a bottom passage.

Applicant submits that claim 20 is not anticipated by the cited reference. For example, claim 20 recites that a protrusion or groove is provided to a second ink supply path and axially extends along the second ink supply path. The protrusion or groove then terminates at the first open end of the first ink supply path.

The Examiner maintains that Boyd suggests the above features. However, even assuming *arguendo* that passage 40b suggests the first and second ink supply path, the reference still does not meet the limitations of claim 20. For example, as shown in Figure 5, passage 40b contains grooves 50 which extend along the entire length of the passage. Therefore, they do not terminate at the first open end (the mid point portion of passage 40b) of the first ink supply path (top portion of passage 40b).

Accordingly, Applicant submits that claim 20 is patentable over the cited reference.

B. Claim 22

Applicant submits that claim 22 is patentable over the cited reference. For example, claim 22 recites that a cross-sectional area of a second ink supply path is larger than that of a first ink supply path.

The Examiner maintains that passage 40b of Boyd discloses the above first and second ink supply paths (Fig. 5). In particular, on page 3 of the Office Action, the Examiner maintains that the top passage of 40b discloses the claimed first ink supply passage, and the bottom passage of 40b discloses the claimed second ink supply passage. However, as shown in Figs. 5 and 6, the alleged first ink supply passage (top portion of 40b), is larger in cross-sectional area than the alleged second ink supply passage (bottom portion of 40b). As disclosed in Boyd, passage 40 tapers throughout its height (Fig. 5; col. 4, lines 21-23). Therefore, Boyd fails to teach or disclose a second ink supply passage having a cross-sectional area larger than a first ink supply passage, as required by claim 22.

Accordingly, Applicant submits that claim 22 is patentable over the cited reference.

C. Claim 23

Since claim 23 is dependent upon claim 20, Applicant submits that such claim is patentable at least by virtue of its dependency.

D. Claim 24

Applicant submits that claim 24 is patentable over the cited reference. For example, claim 24 recites a filter located at an opposite axial terminus of a second ink supply path. The opposite axial terminus is opposite to and downstream from the axial terminus of the second ink supply path.

The Examiner maintains that Boyd discloses the above features. However, Applicant submits that the Examiner is misinterpreting and/or misapplying the cited reference. For example, on page 5 of the Office Action, the Examiner maintains that the top passage of 40b of Boyd discloses the second ink supply path, and the bottom passage of 40b discloses the first ink supply path (Fig. 5 of Boyd). Therefore, the Examiner appears to contend that the claimed axial terminus reads on the location at which the top passage of 40b and the bottom passage of 40b meet (Fig. 5). The Examiner further maintains that filter 42 discloses the claimed filter (Fig. 5). However, as shown in Fig. 5, the filter 42 is located upstream from the alleged "axial terminus" of the second ink supply passage. Accordingly, Boyd fails to teach or disclose the filter recited in claim 24.

In light of the above, Applicant submits that claim 24 is patentable over the cited reference.

E. Claims 25 and 26

Since claims 25 and 26 are dependent upon claim 20, Applicant submits that such claims are patentable at least by virtue of their dependency on claim 20.

F. Claim 28

Since claim 28 contains features which are similar to features recited in claim 22, Applicant submits that claim 28 is patentable for at least similar reasons as set forth above.

G. Claim 29

Since claim 29 contains features which are similar to features recited in claim 22, Applicant submits that claim 29 is patentable for at least similar reasons as set forth above.

III. Rejection Under 35 U.S.C. § 103(a) over Boyd

Claim 27 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd. In particular, the Examiner contends that it would have been obvious to a person having ordinary skill in the art to modify the protrusion of Boyd so that it is formed of material having ink affinity. However, the Examiner's unsupported reliance on the "obvious design choice" rationale is improper and does not satisfy the requirements of 35 U.S.C. § 103.

Also, since claim 27 is dependent upon claim 20, Applicant submits that such claim is patentable at least by virtue of its dependency.

IV. Newly Added Claims

Applicant has added claims 30-34 to provide more varied support for the present invention.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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WASHINGTON OFFICE

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PATENT TRADEMARK OFFICE

Date: May 22, 2003

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

22. (Twice amended) An ink supply passage structure comprising:

a first ink supply path having a first open end, wherein said first ink supply path axially terminates at the first open end;

a second ink supply path connected to and extending from the first open end to be communicated with the first ink supply path, wherein the second ink supply path [is at least as large in]has a cross sectional area [as] larger than that of the first ink supply path, and wherein the first open end of the first ink supply path forms an axial terminus of the second ink supply path; and

a protrusion and/or groove axially provided to the second ink supply path, wherein the protrusion and/or groove is contiguous to at least the first open end of the first ink supply path,

wherein the first ink supply path axially terminates at a longitudinal axis of the first ink supply path,

wherein the longitudinal axis of the first ink supply path is substantially parallel to a longitudinal axis of the second ink supply path, and

wherein the protrusion and/or groove axially extends from the second ink supply path, across the first open end, and into the first ink supply path.

24. (Once amended) An ink supply passage structure comprising:

a first ink supply path having a first open end, wherein said first ink supply path axially terminates at the first open end;

a second ink supply path connected to and extending from the first open end to be communicated with the first ink supply path, wherein the second ink supply path is at least as large in cross sectional area as the first ink supply path, and the first open end of the first ink supply path forms an axial terminus of the second ink supply path;

a protrusion and/or groove axially provided to the second ink supply path, wherein the protrusion and/or groove is contiguous to at least the first open end of the first ink supply path,

wherein the first ink supply path axially terminates at a longitudinal axis of the first ink supply path, and

wherein the longitudinal axis of the first ink supply path is substantially parallel to a longitudinal axis of the second ink supply path; and

a filter located at an opposite axial terminus of the second ink supply path, wherein said opposite axial terminus is opposite to and downstream from said axial [terminal]terminus of the second ink supply path.

28. (New) An ink supply passage structure comprising:

a first ink supply path having a first open end, wherein said first ink supply path axially terminates at the first open end;

a second ink supply path connected to and extending from the first open end to be communicated with the first ink supply path, wherein the second ink supply path [is at least as large in]has a cross sectional area [as] larger than that of the first ink supply path, and wherein the first open end of the first ink supply path forms an axial terminus of the second ink supply path; and

a protrusion and/or groove axially provided to the second ink supply path, wherein the protrusion and/or groove is contiguous to at least the first open end of the first ink supply path, wherein the protrusion and/or groove axially extends from the second ink supply path, across the first open end of the first ink supply path, and into the first ink supply path.

29. (New) An ink supply passage structure for supplying ink from an ink cartridge to a recording head, comprising:

a first ink supply path having a first open end, wherein said first ink supply path axially terminates at the first open end;

a second ink supply path connected to and extending from the first open end to be communicated with the first ink supply path, wherein the second ink supply path [is at least as large in]has a cross sectional area [as] larger than that of the first ink supply path, and wherein the first open end of the first ink supply path forms an axial terminus of the second ink supply path; and

a protrusion and/or groove axially provided to the second ink supply path, wherein the protrusion and/or groove axially extends along the second ink supply path and is contiguous to at least the first open end of the first ink supply path,

wherein the first ink supply path axially terminates at a longitudinal axis of the first ink supply path,

wherein the longitudinal axis of the first ink supply path is substantially parallel to a longitudinal axis of the second ink supply path,

wherein the first ink supply path is located upstream of the second ink supply path in a direction in which ink is supplied from the ink cartridge to the recording head, and

wherein the cross sectional area of the first ink supply path is substantially constant over an entire length of the first ink supply path.

Claims 30-34 are added as new claims.